1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

farther back in the mountains, in the second or third ridge; they drain a larger area, and are subject to sudden falls of rain; such water-courses will in certain seasons be filled for a time by a wide and swift river, discoloured with red mud in suspension, carrying down in this way, as well as by dragging sand along the bottom, large quantities of material from the hills to the lower grounds and to the sea.

These ravines[1] are from a few hundred yards to a mile wide; they are bounded by a sudden bank, often cut into a river cliff of a hundred feet in height that shows to view the sandy and loamy strata. Their flat bottom is mostly sandy; it is sometimes covered in part with the long tufty jungle-grass called in these parts *khar*.

The plateaus between these ravines,[1] though, as before said, somewhat dry, have in great part been brought under cultivation; here, as the crops depend entirely on the rain, their yield varies much with the years.

The tracts where the jungle-grass abounds are frequented by the black-buck or antelope, which indeed, encouraged by the game-laws of the country, spread into the cultivated parts and even herd with the cattle. Near these grassy tracts the villages are composed of pretty thatch-roofed houses; in India straw is never afforded for the purpose of thatching, it is all used as food for the cattle; indeed from the way the treading out the corn on the threshing-floor is carried on no whole straw is left, so it is only where some such material as that stiff grass can be got from the jungles that any thatching is done.

The 70-mile strip of plain extending from the Rāvi to the Chināb is crossed by two large streams that deserve separate mention. These are the Ujh, that debouches by Jasrota, and the Tavi, that comes out of the hills by Jummoo. They are both rivers of perpetual flow and considerable, though much-varying, volume. They rise in the mountains at the back of the Outer Hills at an elevation of 13,000 or 14,000 feet, but not from hills of permanent snow; they have a course among the hills, the Ujh of some 50 and the Tavi of 80 miles, before they reach the

[1] [i.e. in the plains of SOUTHERN JAMMU. -- ANALYST]

1; Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

133x the intervening flats, the curving of the ranges as their direction followed the changing strike of the rocks which constitute them—plainly as in a map; for a length of a hundred miles each separate ridge can be traced from this commanding spot.

133x 137 311 361 To return to the part behind Akhnūr. The outermost range is of pebbly jungle-covered hills sloping easily to the plains, but showing a steep fall inwards; this escarpment is one of perhaps 300 feet; it is succeeded at its foot by a plateau much cut through by ravines, so much so that the eye does not at once distinguish that the summits are indeed so far flat and so much at one level as to justify the name of table-land; its level must be quite 2000 feet above the sea; a good portion of it is of bare rock, the rest is covered with brushwood and has pine trees scattered; only here and there are bits of tilled land by which a small population is supported; the ravines cut through it to a depth of some hundreds of feet, making steep cliffs of sandstone rock.

133x Farther to the north the rock rises up from this plateau along a great length of miles with a slope of from 10° to 20°, coinciding with the dip of the beds, regularly for 1000 or 1200 feet, till a level of more than 3000 feet above the sea is reached; thus a bold narrow ridge is formed which continues regularly for many miles with but small indentations; the surface is in great part rocky, but still bears many trees of the long-leafed pine. The ridge is sharp and narrow; the farther slope is yet steeper than that rocky one; it is an escarpment properly and geologically so called, and a really fine instance of one; for 20 miles without a break it continues with a face of 1000 feet of vertical height, at a slope of in some parts 45°, in some rather less, everywhere marked by variations according to the alternate outcrop of beds of sandstone and of clay.

The name of this ridge is Kālī Thār, or Black Range, a name given on account of the dark hue it has in some states of the atmosphere when seen from a distance.

As we look from the summit of this towards the interior, we can learn about the character of the ground in the remainder of the breadth of the Outer Hills.

1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

We see first, that at the foot of this escarpment stretches a flat valley one or two miles wide; this is one of the dūns, and probably it corresponds with that of Dansāl, on the other side of the Chināb.* This valley, though it may be called in a general way, and as compared with the ridges that bound it, a flat, is broken by lines of sandstone rock that project up; still a good part of it is cultivated in terraced fields; again, it is cut into, for the greater part of its length, by a great gully, narrow, 200 feet deep, that carries off the drainage to the Chināb River; farther west, however, the direction of the drainage alters, and the streams flow into the Mināwar Tavī.

Still looking from our escarpment-summit, we see that beyond the valley lie numerous low lines of hill, an alternation of narrow ridges and hollows, whose surface is mostly covered with brushwood; these occupy some miles of width; behind them rise the bolder slopes of the higher mountains in rich dark colours, intermingled brown and green, backed by the distant snowy peaks.

West of the Mināwar Tavī, the ridges, plateaus, and hollows do not continue to correspond with those we have traced out; new ridges appear in the line of the valleys; others disappear; others coalesce. In fact, a new series of ranges has arisen, generally resembling those we have been looking at, but not individually representing them. By Bhimbar, what may be the continuation of Kālī Thār approaches nearer to the plains. Beyond, from the neighbourhood of that place and of Naushahra north-westward, extend several bold lines of hill, parallel ridges, with narrow hollows between them, themselves broken by lines of rock. These ranges are commonly 3000 feet high, parts of them rise several hundred feet above that, and so continue for a good distance; the highest point marked by the G. T. Survey is as much as 4391 feet.

While from the neighbourhood of Bhimbar such hills as these run with a regular direction to the north-west as far as our boundary

* On the supposition of this correspondence, the two spaces of the plateau and the Kālī Thār ridge together represent the much-broken ground and the successive ridges that we saw to intervene between the first range by Jummoo and the Dansāl dūn itself.

1; Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

CHAPTER V.

VARIOUS PLACES IN THE OUTER HILLS.

EAST OF THE CHINÂB — WEST OF THE CHINÂB.

THE plain at the foot of the hills, being for the most part capable of cultivation and in great part already cultivated, is thickly peopled; everywhere populous villages are to be found. But when we are once on the hills themselves we meet with villages rarely, and these but small; scattered hamlets and scattered houses denote how scarce is land that can be made fit for tilling; sometimes in little nooks and sometimes on steep hill-sides are terraced patches of ground, whose owners either cultivate them from the nearest village, or have made their solitary home close by. In the dûns, however, there are wider spreads of cultivated ground, though separated from one another by dividing ravines.

A village in these parts is a collection of low huts with flat tops, mud-walled, mud-floored, and mud-roofed. The floor and walls are neatly smeared with a mixture of cow-dung and straw. The roofs are timbered either with wood of one of the acacias or with pine. They are supported by one or more pillars, which are capped with a cross-piece some feet in length, often ornamented with carving, that makes a wide capital beneath the beam.

There is no light in the rooms but what may come in at the opened door, or through the chinks of it when closed, such a complete shutting out of the air being equally useful in the very hot and in the cold weather. The substance of the hut is a very bad conductor of heat, and this character tends to keep the interior of an equable temperature. I have often been glad to retreat to such a place from the scorching sun that a tent is but a poor protection against.

In front of the cottage is a level and smooth space, nicely

1; Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

Outer Hills. These were shown to be ridges more or less parallel, separated by flat valleys, sometimes narrow sometimes wide, with the main lines of drainage cutting across, that is, through, the ridges. On the other hand, the Middle Mountains are ridges of varying, irregular, direction, that branch again and again, like the twigs of a tree; the chief ridges are at the same time the more important watersheds.

Looking from a geological point of view, we may say that there is not the same correspondence between the direction of the ridges and the strike of the beds as there is among the Outer Hills.*

The elevation of these Middle Mountains is sufficient to give a completely temperate character to the vegetation. Forests of Himalayan oak, of pine, spruce, silver fir, and of deodar, occupy a great part of the mountain slopes; the rest, the more sunny parts, where forest trees do not flourish, is, except where rocks jut out, well covered with herbage, with plants and flowers that resemble those of Central or Southern Europe.

Cultivation has been carried to almost every place where it is practicable. Wherever, within the altitude that limits the growth of crops, the slope of the ground has allowed of it, the land has been terraced, and narrow little fields have been made, these settlements sometimes being of extent enough to support a village, sometimes sustaining but one or two families.

Here, as in the Outer Hills, the tillage does not depend on irrigation, but on rain; these mountains, indeed, get the best of the Monsoon or rainy season; it is seldom that they suffer from drought, more often they suffer from an excess of downfall. Still the rainfall is not enough for the growth of rice; for this irrigation is wanted, but only in a few places can it be obtained; hence that crop is comparatively rare.

It is only in the very lowest parts of this region that two crops can be got from the same land. The times of growth of the two kinds of crop—of wheat or barley on the one hand, and of maize, rice, or millet, on the other—in most parts overlap each other to

* This contrast is noted, with regard to a similar tract farther east, by Mr. H. B. Medlicott, in 'Memoirs of the Geological Survey of India,' vol. ii., part 2, p. 6.

1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

summits; nothing that could be called a table-land ever occurs. The slopes of these are often covered with fir forest, with the usual succession of species according to the elevation—spruce and silver fir at the very top, giving way, when one has descended 1000 or 2000 feet, to *Pinus excelsa* and deodar, and lower still, at about 5000 feet, to *Pinus longifolia*.

From the height of 6000 or 7000 feet downwards, one meets with scattered patches of tilled ground and with the isolated cottages or huts of the owners. Here and there, on the frequented roads, the houses are collected into a little village that boasts of a shop to supply the simplest wants of travellers.

All the space between the ridge and the river is taken up by such spurs alternating with ravines; the vertical distance is some 7000 feet, the lower part of the slopes, that which overhangs the river, being often the steepest.

The Chīnāb is one of the great rivers of the Panjāb. It rises in the country called Lāhol, in two streams, the Chandra and the Bhāga, the joining of whose names into Chandrabhāga make the word by which the combined river is often known among Hindūs. The other name, Chīnāb, which is more usual, has, I think, the derivation that is so obvious and is commonly given to it, namely, Chīn-āb, the water of China, which name probably was given by the Muhammadans from a notion—by no means far from the truth—that it came from Chinese territory; for the sources of the river are very near to ground that was tributary (though by two removes) to China, and the tract it first flows through is inhabited by the Lāholis, who are allied to the Chinese in speech, look, and religion.

The river after leaving Lāhol (which is now under British authority) passes through Pāngi, a part of the Chamba territory, and enters that of Jummoo in the district called Pādar. From its entrance into this onwards it flows for 180 miles through such country as we have been describing—some more detail of which remains yet to be given—and then for 25 miles through the Outer Hills, before it debouches into the great plain.*

* Details of the course and volume of this river will be found at p. 117 of Cunningham's 'Ladak.' [SEE SOURCE: CUNNINGHAM, AJ4, W. Tibetan ANALYST]

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heights looks back across the valley, the mountains on the north show out their whole form and grandeur. Behind Rámban is a very distinct ridge, continuing for 15 miles at an average height of 9000 or 10,000 feet. From this ridge a succession of spurs come down to the river, separated by valleys which are little more than a mile distant from one another; at their mouths small tracts of land are terraced and often irrigated. The spur-sides are steep, but seldom rocky, the greater part of their surface is covered with herbage; some also is forest, but, from the general south aspect, not a great proportion; it is only where side-slopes give a more shady outlook that thick forest can be found, but over a good part of the rest trees and bushes are scattered.

Besides the cultivation low down near the river, patches of land have been brought under tillage all the way up to 7000 feet, after partial levelling and terracing. This is more common than anywhere else on the flatter tops of the spurs just above their last fall to the river, say at an elevation of 5000 feet. Such hill-side cultivation depends entirely on rain for its moisture, for water cannot be brought to such spots for irrigation.

Farther back, are higher, rocky, mountains that reach some 2000 feet above the forest limit; these make part of the range that bounds Kashmir; over a long depression in this the Banihál road leads to that country. Farther west there are the ridges of Dainkmarg, Patal, and Sartali, all which have bold rocky summits.

The branch valley, in which flows the Banihál stream, reaches up among these mountains. Along the bottom of it are evergreens and deciduous trees, making a beautiful and varied foliage. The steep hill-sides above have long-leafed pines scattered over them; among these the road leads us, cut into the bank in winding contours, high above the stream. Farther up the valley the road comes to the very side of the stream, which flows among fallen rocks, often rushing over them in rapids. As we go up we gradually leave behind the trees of the lower region, and get among those that frequent higher levels.

Following up the main river, the next place where I have

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138 Pádar, the distance being 48 miles. In the first day's march we pass through a thick forest of oak varied with firs. The path contoured through it for some miles; there were signs of deserted terrace-fields, which must have been thrown out of cultivation long ago, for oaks of 6 feet girth were growing on them. Anon the road passed along a rocky face of hill somewhat difficult to cross; again we came to a wooded slope, where there was a mixed forest of deodar, *Pinus excelsa*, oak, and chestnut, with underwood of hazel; and so, with many ups and downs and much curving in and out of the ravines, mostly among woods, Bagni, the first stage, was reached.

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For the next two marches and more the way leads over somewhat similar ground, but with greater heights to climb. The river is edged by cliffs, and to avoid them the path rises to great heights. In one march we had to ascend as much as 2500 feet. The road was in many parts difficult; sometimes we had to ascend many hundred feet across smooth slopes of rock; where not rocky, the ground was often in forest; there was little cultivation, but there were signs of there having been more in some former time.

Our height above the river gave much an advantage for seeing the mountains on the opposite side of it that the views from many points along the march were some of the grandest I had seen in the Himalayas. We looked across the valley, sometimes with a clear open view, sometimes getting peeps through the dense forest, on to great broken cliffs or rocky slopes that rose direct from the river for 6000 or 7000 feet; these were the ends of mighty spurs from the lofty ridge beyond, which we sighted, as we passed along, looking up the valleys that in succession opened between the spurs.

From one of the highest points reached by the road, a place called Sirt, 8700 feet high, which was formerly a summer grazing place, and is the halting place at the end of the third march, we saw as great a vertical height within a few miles as one can often see even in the Himalayas. The summit was 12 miles distant, and in that space a height of 16,000 feet was visible. There rose a magnificent set of peaks, called the Brama peaks—five points in

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133 Pádar is surrounded, we might almost say enclosed, by mountains bearing perpetual snow; these give rise to glaciers, which end off at too high a level for them to project into the main valley. Most of the mountains in sight from below are either the rocky or the forest-covered lower slopes. The cultivated part is very small in extent; there is the collection of villages in the four miles below Atholi, where is the widest opening in the whole tract; and there are some small villages at intervals farther up the two valleys. All these together have 400 houses.

131 Atholi, which may be counted the chief place in Pádar, is on an alluvial plateau, 6360 feet above the sea and 200 feet above the river; on the opposite bank is a wider plain, some 60 feet lower in level. At the very point of the meeting of the Bhutná River with the Chináb, only 40 or 50 feet above the water, is the present fort, a little toy-looking affair; it is a square work with round corner towers, built, in the manner of the country, of alternate courses of stone and timber, and plastered over; it is garrisoned by ten or twelve men. Behind the fort are remains of the former town of Chatargarh; these are linear heaps of stones, arranged, on the whole, in a square form. On the same plateau are groups of trees, sheltering some wooden temples and shrines.

133 The Chináb, which flows between the two plateaus, comes from the direction of Pángi through a rock-bounded gorge, in a narrow deep stream; then widening out it sweeps along below Atholi. At the beginning of June, when the sun was fast melting the snows, and the glacier-water was bringing down in suspension a fine light drab mud that coloured the whole river, the rate of the current at this spot was 6½ miles an hour. It is here spanned by a rope bridge; a wooden bridge that for some years had existed, was carried away by a flood about 1865; this probably was the flood which I heard of as having been brought about by a natural damming of the river in Lahol far away up; the breaking of the dam made the waters rise at Atholi to something like 100 feet above their winter level.

132 The climate of Pádar is severe. From its elevation, and the considerable moisture of its air, there is a great fall of snow in

1: Drew G-3 (1862-1872) 1875 AV1 Kashmir AV1

175 631 something through the British Government, which he enjoys at Wazīrābād.

177 361 [346] Rājāori has one conspicuous building raised by its last, the present, rulers. A large temple, elevated on a rock by the river, shows to all that Hindū power has again spread thus far west. As another sign of this, the Dogrās have changed the name of the place to *Rāmpūr*, thus designating it after one of their gods; this new name has displaced the old in official dealings, but not in the mouths of the commonalty.

RAJAORI TO SIRINAGAR: EIGHT MARCHES.

133 487 We have hitherto in our journey been among the Outer, the Lower, Hills; in these next marches we shall get over the higher ranges of mountains, those that are the great barriers of Kashmir. The first two days' march from Rājāori will take us northward over the Ratan Ridge by a pass that is called the Ratan Pīr; the next four will lead us eastward through the main Panjāl Range (of which the other was a branch) by the pass called the Pīr Panjāl, and will bring us down to the level and out into the wide opening of the vale of Kashmir; the last two are wholly within that valley.

The following is a list of the eight marches, still numbering from Jummoo:

	Miles.		Miles.
7. Rājāori to Thanna	14	11. Allāhād to Hirpūr	14
8. Thanna to Darangalla ..	10	12. Hirpūr to Shapeyan	6
9. Darangalla to Pushtāna ..	10	13. Shapeyan to Kahnpūr ..	15
10. Pushtāna to Allāhād Fort ..	11	14. Kahnpūr to Sirinagar ..	12

In the first march, from Rājāori to Thanna, we keep for 14 [311] miles in the same not wide valley, following up this western Tavi stream, rising by a gradual incline. The ground of the valley is all terraced and made into rice-fields, which at this time are flooded with water led from the stream in preparation for the sowing, which will be done a week or two later. The valley is closely bounded by spurs of hills, which change their look as we near the end of the march, for we then get among a higher class

As one descends the mountains and leaves the woodland glades, cultivation commences immediately, and right up to the fringe of the forests maize is grown and walnut-trees abound. A little lower down, at an elevation of about 7,000 feet, rice of a hardy and stunted growth is found, and the shady plane-tree appears. Lower still superior rices are grown, and the watercourses are edged with willows. The side valleys which lead off from the vale of Kashmīr, though possessing distinctive charms of their own, have certain features in common. At the mouth of the valley lies the wide delta of fertile soil on which the rice with its varying colours, the plane-trees, mulberries, and willows grow luxuriantly; a little higher up the land is terraced and rice still grows, and the slopes are ablaze with the wild indigo, till at about 6,000 feet the plane-tree gives place to the walnut, and rice to millets. On the left bank of the mountain river endless forests stretch from the bottom of the valley to the peaks; and on the right bank, wherever a nook or corner is sheltered from the sun and the hot breezes of India, the pines and firs establish themselves. Farther up the valley, the river, already a roaring torrent, becomes a veritable waterfall dashing down between lofty cliffs, whose bases are fringed with maples and horse-chestnuts, white and pink, and millets are replaced by buckwheat and Tibetan barley. Soon after this the useful birch-tree appears, and then come grass and glaciers, the country of the shepherds.

Karewas. Where the mountains cease to be steep, fan-like projections with flat arid tops and bare of trees run out towards the valley. These are known as *karewa*. Sometimes they stand up isolated in the middle of the valley, but, whether isolated or attached to the mountains, the *karewa* presents the same sterile appearance and offers the same abrupt walls to the valley. The *karewas* are pierced by mountain torrents and seamed with ravines. Bearing in mind that Kashmīr was once a lake, which dried up when nature afforded an outlet at Bāramūla, it is easy to recognize in the *karewa* the shelving shores of a great inland sea, and to realize that the inhabitants of the old cities, the traces of which can be seen on high bluffs and on the slope of the mountains, had no other choice of sites, since in those days the present fertile valley was buried beneath a waste of water.

Lakes and springs. Kashmīr abounds in mountain tarns, lovely lakes, and swampy lagoons. Of the lakes the WULAR, the DAL, and the Manasbal are the most beautiful. It is also rich in springs, many of which are thermal. They are useful auxiliaries to the mountain streams in irrigation, and are sometimes the sole

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The Indus valley is a barren dewless country. The very river with its black water looks hot, and the great mountains are destitute of vegetation. The only thing of beauty is the view of the snowy ranges, and Nanga Parbat in the rising sun seen from the crossing of the Indus river to Gilgit sweeps into oblivion the dreadful desert of sands and rock. Gilgit (4,890 feet) itself is fertile and well watered. The mountains fall back from the river, and leave room for cultivation on the alluvial land bordering the right bank of the Gilgit river, a rare feature in the northern parts of the Mahārājā's dominion.

Another route giving a general idea of the country runs from west to east, from Kohāla on the Jhelum to Leh, about 5 miles beyond the Indus. A good road from Rāwalpindi brings the traveller to Kohāla, where he crosses the Jhelum by a bridge, and enters the territories of Jammu and Kashmīr. The cart-road passes from Kohāla to Srīnagar, a distance of 132 miles, by easy gradients. As far as Bāramūla the road is close to the river, but for the most part at a great height above it, and the scenery is beautiful. At Muzaffarābād the Kishangangā river joins the Jhelum, and here the road from Abbottābād and Garhi Habīb-ullah connects with the Kashmīr route. The road runs along the left bank of the Jhelum, through careful terraced cultivation, above which are pine forests and pastures. It carries a very heavy traffic, but owing to the formation of the country it is liable to constant breaches, and is expensive to keep in repair. Kohāla to Leh.

From Uri a road runs south to the country of the Rājā of Pūnch, the chief feudatory of the Mahārājā, crossing the Hāji pass (8,500 feet). At Bāramūla the road enters the valley of Kashmīr, and runs through a continuous avenue of poplars to Srīnagar. In bygone days this route, known as the Jhelum valley road—now the chief means of communication with India—was little used. The Bambās and Khakhās, who still hold the country, were a restless and warlike people; and the numerous forts that command the narrow valley suggest that the neighbourhood was unsafe for the ordinary traveller. The construction of the road from Kohāla to Bāramūla cost the State nearly 22 lakhs.

From Srīnagar to Leh is 243 miles. The first part of the journey runs up the Sind valley, perhaps the most exquisite scenery in Kashmīr. Fitful efforts are made from time to time to improve this important route, but it still remains a mere fair-weather track. The Sind river thunders down the

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bank through the fertile oasis of Khalsi, then through the usual desert with an occasional patch of vegetation to Leh (11,500 feet), the capital of Western Tibet and of Western Buddhism, and the trade terminus for caravans from India and from Central Asia. It is a long and difficult road from Leh to Yārkand, 482 miles, over the Khardung La, the Sasser La, and the Karakoram pass of between 17,000 and 19,000 feet altitude, where the useful yak (*Bos grunniens*) relieves the ponies of their loads when fresh snow has fallen, or serves unladen to consolidate a path for the ponies.

Leh to Astor.

A brief description may be given of one more of the many routes that follow the rivers and climb the mountains—the route from Leh through Baltistān to Astor on the Gilgit road. At Khalsi, where the Srīnagar-Leh road crosses the Indus, the track keeps to the right bank of the Indus, and passing down the deep gorge of the river comes to a point where the stupendous cliffs and the roaring torrent prevent farther progress. There the traveller strikes away from the Indus and ascends the mountains to the Chorbat pass (16,700 feet), covered with snow even in July. From the pass, across the valley of the Shyok river, the great Karakoram range, some 50 miles away, comes into view. An abrupt descent carries the traveller from winter into hot summer; and by a difficult track which in places is carried along the face of the cliff by frail scaffolding (*pari*), following the course of the Shyok river, smoothly flowing between white sands of granite, and passing many pleasant oases, one comes to the grateful garden of Khapallu, a paradise to the simple Baltis. Crossing the united waters of the Shyok and the Indus on a small skin raft, the traveller arrives at Skārdu (7,250 feet), the old capital of Baltistān. Here the mountains on either side of the Indus recede, and the sandy basin, about 5 miles in breadth, is partially irrigated by water from the pretty mountain lake of Satpura and carefully cultivated. Looking across the Indus to the north, the Shigar valley, the garden of Baltistān, with its wealth of fruit trees is seen. There the cultivator adds to his resources by washing gold from the sands of the river. From Skārdu the direct route to Gilgit follows the Indus, which is crossed at Rondu by a rope bridge so long as to be most trying to the nerves, but a fair-weather track over the Banak pass lands the traveller on the Gilgit road at Astor.

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It is difficult to give a general idea of a country so diversified as Kashmīr and Jammu. As will be seen in the section on history, a strange destiny has brought people of distinct races,

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133 languages, and religions, and countries of widely different physical characteristics, under the rule of the Mahārājā.

Mountain and river systems.

The Kashmīr territory may be divided physically into two areas: the north-eastern, comprising the area drained by the Indus with its tributaries; and the south-western, including the country drained by the Jhelum with its tributary the Kishangangā, and by the Chenāb. The dividing line or watershed is formed by the great central mountain range which runs from Nanga Parbat, overhanging the Indus on the north-west, in a south-easterly direction for about 240 miles till it enters British territory in Lāhul.

South-western area.

The south-western area may, following the nomenclature of Mr. Drew, in its turn be geographically divided into three sections: the region of the outer hills, the middle mountains, and the Kashmīr Valley.

Outer hills.

Approaching Kashmīr from the plains of the Punjab, the boundary is not at the foot of the hills, but embraces a strip of the great plains from 5 to 15 miles wide, reaching from the Rāvi to the Jhelum. As is generally the case along the foot of the Western Himālayas, this tract of flat country is somewhat arid and considerably cut up by ravines which carry off the flood-water of the monsoon. A fair amount of cultivation is found on the plateaux between these ravines, though, being entirely dependent on the rainfall, the yield is somewhat precarious. The height of this tract may be taken at from 1,100 to 1,200 feet above sea-level.

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Passing over the plain a region of broken ground and low hills is reached, running mainly in ridges parallel to the general line of the Himālayan chain. These vary in height from 2,000 to 4,000 feet, and are largely composed of sandstone, being in fact a continuation of the Siwālik geological formation. Lying between these parallel ridges are a series of valleys or *dūns*, fairly well populated, in the east by Dogrās, and in the west by Chibs. These hills are sparsely covered with low scrub bushes, the *chīr* (*Pinus longifolia*) gradually predominating as the inner hills are reached. Beyond these lower hills rise the spurs of a more mountainous district.

The middle mountains.

The scope of this region, as defined by Mr. Drew, has been somewhat extended, and includes the range which forms the southern boundary of the Kashmīr Valley, known as the Panjāl range, and its continuation eastwards beyond the Chenāb. This tract is about 180 miles long and varies in width from 25 to 35 miles. The portion lying between the Jhelum and Chenāb is formed by the mass of mountainous spurs running

3: Imperial Gazetteer G-3 (1889-95) 1909 AV1 Kashmīr AV1
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Bhānds or Bhagats, already referred to. Sometimes we find in the villages a wandering minstrel (Shair), who sings to the accompaniment of a guitar, or recites verses, often extempore, full of local allusions and usually full of flattery, if an official or person of influence be present. Like most Orientals, the Kashmīris regard amusement as passive rather than active. They are glad to look on at a race or a game, but it is extremely difficult to induce them, athletic and powerful as they are, to take a part in any sport. They are not altogether to blame. In former days pastime was at a discount, and small mercy would have been shown to the serf who suggested that life should not be all labour. Even in the pampered city of Srīnagar the effervescence of youth was checked by Gulāb Singh, who sternly repressed the old ward fights with slings and stones. The professional *shikāris* are often keen sportsmen; and the boatmen of Kashmīr will, when challenged, paddle till they drop rather than be beaten by a rival crew.

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Agriculture. Jammu.

As already explained, the Jammu province consists of a fringe of level land bordering on the Punjab Districts of Jhelum, Siālkot, and Gurdāspur, gradually rising by a succession of ranges of hills to the high uplands bounded by the mountains of the Himālayan range, across which lie Kashmīr, Baltistān, and Ladākh. The variations of climate are great, and the staples cultivated naturally vary to some extent with the climate. Thus the lower tracts yield all the usual crops of the Punjab, while in the higher tracts saffron, buckwheat, and mountain barley are grown. In the warmer parts the mango and *shisham* are found in large quantities; but these give place to apple and pear-trees, to the picturesque *deodār* and shady Oriental plane (*chinār*) in the colder parts.

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Plains and lower hills.

The province may be roughly divided into three main divisions. The plains and *kandi* hills consist of the *tahsīls* of Kathua, Jasmirgarh, Samba, Ranbīrsinghpura, Jammu, Akhnūr, Manawar, and Mīrpur. In the hot moist tracts, such as those irrigated from the Rāvi and Ujh in the Jasrota district to the south-west, sickness is so rampant that the resident population is too small for the cultivation of the soil, which is chiefly tilled by *udarach* cultivators, men from the low hills who descend to the plain for short periods to sow, tend, and reap crops, and return again to their healthier homes.

North of this lie the thirsty lowlands, sheltered by the hills from the cooler inland breezes, seamed with many channels (*kadhs*), which carry off the drainage of the uplands and become

roaring torrents for a few hours after heavy rainfall, but at other times are broad stretches of burning sand. This tract depends for a full crop on timely and well-distributed rainfall.

The parched *kandi* hills[1] are composed of a red loam, thickly strewn with round stones and covered with stunted growth of *garna sanatan* and *bahaikar* bushes, broad-leaved species of trees, acacias, and in parts bamboos. The *tor* (*Euphorbia*) is used to hedge the fields and cobble-paved paths, and to keep the *nilgai* from damaging the crops. The soil is thirsty and dries quickly, as the land slopes and drainage is rapid. Frequent rainfall is necessary to ripen the crops, chiefly wheat, barley, and *sarshaf* (rape) in the spring, and millet and maize (on manured land) in the autumn; but rain washes away the soft earth and leaves the surface of the soil a mass of stones.

Where the *kandi* hills end, and before the first limestone ridge is crossed, there is a narrow belt of cool land lying in the valleys traversed by the clear streams which carry the drainage of the middle hills on the lower side. When the depth of soil is sufficient, excellent crops are raised and much of the land is irrigated; but on the slopes where the depth of earth is small, and the limestone crops up to the surface (*prāt*), cultivation is precarious. Too much rain causes the soil to become water-logged, as percolation is stopped by the rock bed; and during a continued spell of hot weather the rock surface becomes so heated as to burn the roots of the crops, which wither.

Irrigation.

In this portion of the province wells are few, owing to their cost. Except in the lowland bordering on the streams deep boring is necessary, and it is common to find that the water is from 70 to 100 feet below the surface. The cultivators are not as a rule sufficiently well-to-do to undertake the expenditure necessary to sink such wells, and risk the failure of finding water. Since the introduction of the regular settlement, the Darbār has done much to encourage the sinking of wells by the grant of advances on easy terms.

In this tract, however, are found the only considerable areas protected by irrigation. The natural difficulties to be overcome are great, as the lie of the land makes projects costly and difficult to execute. The lines of irrigation have to cross the drainage of the country, and it is not easy to secure the channels against damage from the *kadhs* when in flood. Owing to this difficulty, the more ambitious projects of former days—the Kashmīr canal taking off from the Rāvi above the

[1] [For the province of Jammu -- Analyst]

3: Imperial Gazetteer G-3 (1889-95) 1909 AV1 Kashmir AV1

Mādhopur weir, the Shāhi Nahr taking off from the left bank of the Chenāb opposite Akhnūr, and the Katobandi or Dalpat Nahr taking off from the Chenāb on the right bank—failed to render permanent help to the country. Something has recently been done to remedy the apathy displayed in the past. Two old irrigation works taking off from the Tāwi in the Jammu *taksīl*—the Jogi Darwāza canal irrigating the land immediately below Jammu city, and the Satwari canal irrigating the villages round Satwari cantonment—have been realigned and put in order; and the Dalpat canal, taking off from the right bank of the Chenāb and irrigating a large portion of the Akhnūr *taksīl* lying immediately north of the Bhajwath Andar, has been reconstructed.

Under agreement with the Government of the Punjab the right of the State to take water from the Rāvi, above the Mādhopur weir, for the irrigation of spring crops in the Kathua *taksīl* has been surrendered in consideration of an annual payment of Rs. 5,000. The restoration of the old Kashmīr canal, which takes off above the weir, is thus not financially attractive. Probably the low-lying portion of the Mīrpur *taksīl*, known as the Khari Ilāka, could be irrigated from the Jhelum; but this source of irrigation has not been tapped.

Hindrances to cultivation.

There are many drawbacks to agriculture. The administration in the past was bad and shortsighted. There are practically no roads, and in the *kandi* tract even drinking-water is obtained with difficulty. Much damage is done by *nīlgai*, hog, and monkeys, the first-named animal, though an antelope, being regarded as sacred like the cow. Cattle turned loose, either as likely to die and of no further use, or devoted to the deity, have become quite wild and do much damage to crops.

Intermediate band.

Above the first limestone range lies a country of wide valleys and high hills, consisting of Basoli, Rāmnagar, Udhampur, Naoshera, and part of Riāsi. This has a more temperate climate than the tract just described. The supply of water by perennial streams is constant, but the stream beds are deep and irrigation is not easily effected. Being nearer the Himālayan range, rainfall is usually heavy and fairly constant, so that the people do not trouble themselves much about irrigation, except where this can be contrived at little expense. The crops are much the same as in the plains, but *bājra* gives way to maize, and sugar-cane and turmeric disappear. The seasons are shorter. The areas of *prāti* land, where the limestone bed penetrates or approaches the surface of the soil, are con-

siderable. Communications are backward and prices generally rule low. Trade is carried on by Telis, who keep droves of pack-bullocks or ponies. Grazing is good and the tract is frequented by Gūjars, goatherds, and shepherds. A considerable export of *ghi* takes place. Wild hog and monkeys do damage, but no antelope are found. Autumnal fevers are very rare.

Uplands. The higher uplands, including Bhadrāwar, Kishtwār, Rāmbān, part of Riāsi, and Rāmpur Rājaori, have a really cold climate, and in the winter snow falls. The cultivators are a different class from those in the plains and lower hills, and Kashmīri settlers are found. Here the mango-tree gives place to the apple; and the pear, the Oriental plane (*chinār*), and the *deodār* are found. The climate approximates to that of the valley of Kashmīr, and cultivation is on much the same lines. The specialities are saffron in Kishtwār, and poppy in Dodār, Kishtwār, and Bhadrāwar. This tract is healthy, and only in the more shut-in valleys do fevers trouble the people. Irrigation is general and the rainfall heavy. Grazing lands are plentiful and Gūjars numerous. Early snowfall and cold winds from the mountains affect the crops in the parts adjoining the Himālayan range, and prevent these coming to maturity in certain years. Bears, hog, and monkeys do some damage.

Kashmīr proper. Owing to its system of rivers, Kashmīr proper possesses a large area of alluvial soil, which may be divided into two classes: the new alluvial, found in the bays and deltas of the mountain rivers; and the old alluvial, lying above the banks of the Jhelum and extending as far as the *karewa*. The first is of great fertility, and every year is renewed and enriched by silt from the mountain streams. Up to the present, in spite of the lax system of forest conservancy, the silt of the mountain streams is rich and of dark colour; but the Sind river brings down an increasing amount of sandy deposit, which is partly due to the reckless felling of trees in its valley.

Soils. The Kashmīris, so far, have considered no crop worthy of attention save rice; by irrigation and manuring an artificial mould has been obtained for the rice-fields, and it is rare to hear anything said about the original soil. But they recognize four classes which require peculiar treatment when under rice-cultivation. These are known as *grūtū*, *bahil*, *sekil*, and *dasanlad*. *Grūtū* soil contains a large proportion of clay. It holds water, and in years of scanty rainfall is the safest land for rice. But if the rains be heavy, the soil cakes and the outturn of rice is poor. *Bahil* is a rich loam of great natural

[i.e. north of Jammu -- Analyst]

(H) Cultivated area.—Of the total area of the State, 5.6 per cent. is cultivable and 4.9 per cent. is actually cultivated. The percentage of irrigated area to cultivated area is 35.1 The percentage of gross cultivated area under rice is 19.3; under wheat 19.5; under barley 2.3; under bajra 3.9; under maize 29.6; and under other food crops including pulses 10.7.

Dialects.—The principal languages spoken in Jammu and Kashmir Provinces are Kashmiri, Dogri, Punjabi, Gojri and Pahari. Bhotia and Shina are spoken in Ladakh and Gilgit. Owing to the existence of natural barriers, such as high and vast mountain ranges severing the Indus valley from the rest of the country, Bhotia and Shina languages have remained localized within their territorial boundaries and are not understood in other parts of the country.

Land Tenures.—Prior to 1933, land in Kashmir Province and in the Frontier districts was held by *zamindars* either in "*Haq-i-assami*" or as Tenants-at-will and in some cases also as Occupancy tenants. Under *Haq-i-Assami*, all the land was owned by the State, the actual holders or *assamis* had the right of occupancy as against the State as long as they paid the dues, but had no right of alienation by sale or mortgage.

Transfers were, however, permitted within the municipal limits of Srinagar and in Anantnag, Shopian, Bijbihara, Pampore, Sopore, Baramulla and Muzaffarabad towns.

Tenants-at-will held land subject to the will of the proprietor, who could eject them at any time. In Kashmir, tenants-at-will included a large number of *zamindars* who had been found in 1924 to have encroached on huge *khalsa* areas and to have brought them under cultivation. Occupancy tenants had the right of occupancy of land under a proprietor or an *assami*. They could not be ejected without special reasons, nor could rent on the land be altered at the will of the landlord. Their right was hereditary, and could be sold with the permission of the landlord.

Occupancy tenants were of two kinds, *viz.*, (1) those who held land direct from a land-holder or the State, and (2) those who held land under occupancy tenants of class (1). In Kashmir, occupancy tenants consisted mainly of tenants who held land at the first Settlement,

1: Lawrence G-3 (1889-1895) 1895 AV4 Kashmir
Kashmir AV1

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other hill station of the outer Himalayas, but in February it is apparently damper, and in the remaining months of the winter and spring of about the same character. The humidity is highest in August, when it amounts to about 80 per cent. of saturation. In March the skies are as cloudy as during the rains. In the spring months, from March to May, it rains on an average about one day in three, most frequently in April. The rainfall on each rainy day averaging about one-fourteenth of an inch. Rain is less frequent in June, but increases again in July and August, when about half the days are more or less rainy and the falls heavier than in the spring, averaging three-quarters of an inch on each day of rain. The number of rainy days has varied from 74 only in the dry year 1880, to 123 in 1885, and the total quantity from 39·1 inches in the former to 71·8 inches in the latter year.

'October and November are the clearest months, but even these, and every month up to May, are more cloudy than at Simla or on the plains. On the other hand, in July and August there is less cloud than at Simla or other more easterly stations, as might be expected from the smaller frequency of rain.

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'Leh.[1]—Situated 4° further north than Quetta, and 6,000 feet higher, this station in the leading characteristics of its climate represents that of Western Tibet. Its observatory, 11,500 feet above the sea, is the most elevated in Asia, and has now furnished a register for twelve years.

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'Leh,[1] the chief town of the province of Ladákh, is situated in the upper valley of the Indus, which is here from six to eight miles across for a distance of forty or fifty miles, and shut in on both sides by portions of the Tibetan plateau, averaging 16,000 feet above sea-level, and bearing some of the loftiest ranges of the Himalayas. The flats and terraces along the banks of the river are all cultivated, and dotted with numerous villages, but for a mile on each side, between the fields and the foot of the hills, is a waste of sand, gravel, and large boulders, similar to that which fringes the much lower hill ranges of Baluchistan, but on a larger scale. The town of Leh nestles under the hills north of the valley, at a distance of some four miles from the river, up a long gentle, gravelly slope.

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'The atmosphere of the valley is remarkably clear and transparent, and the heat of the sun very great. There is generally a difference of more than 60° between the reading of the exposed sun thermometer in vacuo and the air temperature in the shade, and this difference has occasionally exceeded 90°. It has been mentioned on a former page that Dr. Cayley succeeded in making water boil by simply exposing it to the sun in a small bottle blackened on the outside, and shielded from the air by inserting it in a larger phial of transparent glass. Owing to the diminished pressure of the atmosphere at the elevation of Leh, this would, however, take place

[1] [Notes by Eliot. See category 116, p. 27 for identification of Eliot -- Analyst]

6:Spate N-4 (no date)1954 AWI India
KASHMIR
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132 *Temperature ° F.*

J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	
30·7	33·0	45·1	55·7	63·9	69·9	73·0	70·8	64·0	53·2	44·0	36·3	Ra. 42·3

Precipitation, inches

2·7	2·8	3·6	3·8	2·3	1·5	2·2	2·3	1·6	1·2	0·4	1·5	Tot. 25·7

While the difference between the annual means at Simla (7200 ft) and Srinagar is less than 2° F. (55·1 at Simla, against 53·3), Simla temperatures for January, February, and March are 8·1, 7·6, and 6·4° above those of Srinagar, but those of July and August 8·7 and 8·0 less; the range at Simla is only 28·1°. Much of the precipitation is snow; the usual rains months (June–September) receive only 8·7 ins., January–March 9·1. It must be remembered that Srinagar is in the very bottom of the Vale, which as a whole receives 32–35 ins.

136 There is naturally a strong vertical zoning of climate and vegetation, and differences in exposure to insolation are most important. Immediately below the forests maize is the most important crop and walnut trees are numerous; at 7000 ft "hardy and stunted" types of paddy come in, to be succeeded by the better paddy of the lower terraces and the marshy tracts where the streams wind along through groves of willows.

241 The side valleys . . . have certain features in common. At the mouth of the valley lies the wide delta of fertile soil on which rice, plane-trees, mulberries, and willows grow luxuriantly; a little higher up the land is terraced and rice still grows, while the slopes are ablaze with the wild indigo, till at about 6000 feet the plane-tree gives place to the walnut, and rice to millets. On the south bank of the river endless forests stretch from the bottom of the valley to the peaks; and on the north bank, wherever a nook or corner is sheltered from the sun . . . pines and firs establish themselves. Further up . . . millets are replaced by buckwheat and Tibetan barley. Soon after this the useful birch-tree appears, and then come grass and glaciers, the country of the shepherds. [14]

Agriculture

● 311 Kashmir as a whole contains some 52 m. ac., of which 44 m. are unsettled or have no agricultural returns. Of the balance of 8 m. ac. about a quarter is cultivated, and a third of this quarter is in the Vale. Rice at lower and maize at higher levels are dominant, nearly half and over a third of the TSA respectively. Wheat has 10–12%, and the only other crops of much areal significance are linseed and rape.

241 Farming methods are very distinctive. Not much care (except the use of a rough rotation) is given to crops other than rice and garden produce. Rice is intensively manured, sometimes by piling farmyard refuse at the irriga-

[14] *Kashmir Gaz.* (1909), 6.